

**CONSTRUCTION PERMIT  
AIR QUALITY MANAGEMENT SECTION**

Environmental Resources Management Division  
2700 South Belmont Avenue  
Indianapolis, Indiana 46221-2097

Georgetown Substation Generating Plant  
DTE Georgetown, LLC  
Indianapolis Power and Light Company  
8198 Georgetown Road  
Indianapolis, IN 46268

is hereby authorized to construct

Three (3) General Electric simple cycle, natural gas-fired combustion turbines (EU GT1, GT 2 and GT 3) rated at 88.4 MW each at peak load (59 degrees Fahrenheit at 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of IAPCB Regulation 2, 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP0990352-01	
Issued by:  Robert F. Holm, Ph.D., Administrator Environmental Resources Management Division	Issuance Date:

## Construction Conditions

### General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Environmental Resources Management Division (ERMD), Air Quality Management Section.
2. That this permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of Chapter 5 of the Code of Indianapolis and Marion County and the regulations promulgated thereunder, Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

### Effective Date of the Permit

3. That pursuant to IAPCB Regulation 2 (Permits) and IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-9(b), the Administrator may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2 (Permit Review Rules).

### First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:
  - (a) The attached affidavit of construction shall be submitted to the Environmental Resources Management Division (ERMD), Air Quality Management Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or delivered to ERMD.
  - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
  - (c) Permittee shall receive an Operation Permit Validation Letter from the Environmental Resources Management Division (ERMD) and attach it to this document.
  - (d) That the operation permit will be subject to annual operating permit fees pursuant to IAPCB Sec. 511 (Permit fees).

- (e) Pursuant to 326 IAC 2-7-4, the Permittee shall apply for a Title V operating permit within twelve (12) months after the source becomes subject to Title V. This 12-month period starts at the postmarked submission of the Affidavit of Construction. If the construction is completed in phases, the twelve-month period starts at the postmarked submission date of the Affidavit of Construction that triggers the Title V applicability. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

NSPS Reporting Requirement

7. That pursuant to the New Source Performance Standards (NSPS), 40 CFR, Part 60, Subpart GG, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:
- a) Commencement of construction date (no later than 30 days after such date);
  - b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
  - c) Actual start-up date (within 15 days after such date); and
  - d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

<b>Indiana Department of Environmental Management</b>	<b>Environmental Resources Management Division</b>
<b>Compliance Data Section, Office of Air Management</b>	<b>Air Quality Management Section, Compliance Data Group</b>
<b>100 North Senate Avenue, P.O. Box 6015</b>	<b>2700 South Belmont Avenue</b>
<b>Indianapolis, Indiana 46206-6015</b>	<b>Indianapolis, Indiana 46221-2097</b>

and

The application and enforcement of these standards have been delegated to the ERMD. The requirements of 40 CFR Part 60 are also federally enforceable.

8. That when the facility is constructed and placed into operation the following operation conditions shall be met:

### **Operation Conditions**

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in IAPCB Regulation 2 (Permits) and 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Environmental Resources Management Division (ERMD), Air Quality Management Section.
2. That the Permittee shall comply with the provisions of Chapter 5 of the Code of Indianapolis and Marion County and the regulations promulgated thereunder, Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Transfer of Permit

3. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-6 (Transfer of Permits):

- (a) In the event that ownership of these turbines is changed, the Permittee shall notify the Environmental Resources Management Division, Air Quality Management Section and the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
- (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
- (c) The ERMD and OAM shall reserve the right to issue a new permit.

Permit Revocation

4. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-9(a) (Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) For any cause which establishes in the judgment of ERMD and IDEM, the fact that continuance of this permit is not consistent with purposes of IAPCB Regulation 2 (Permits) and 326 IAC 2-1 (Permit Review Rules).
- (e) Noncompliance with the orders issued pursuant to IAPCB Regulation 1-5 ( Emergency Reduction Plans) and 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

Availability of Permit

5. That pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit and all applicable records on the premises of the IPL Morris Street Building (the facility will be controlled remotely) and shall make this permit available for inspection by the ERMD, IDEM, or other public official having jurisdiction.

Performance Testing

6. That pursuant to IAPCB Regulation 2 (Permits) and 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 326 IAC 12 (New Source Performance Standards) stack tests shall be performed on combustion turbines GT1, GT2 and GT3 to show compliance and verification with NOx emission rates within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Administrator.

- (a) A test protocol shall be submitted to the OAM, Compliance Data Section, and ERMD, Air Quality Management Section, Compliance Data Group, 35 days in advance of the test.

- (b) The OAM, Compliance Data Section, and ERMD, Compliance Data Group, shall be notified of the actual test date at least two (2) weeks prior to the date.
- (c) All tests reports must be received by OAM, Compliance Data Section, and ERMD, Compliance Data Group, within 45 days of completion of the testing.
- (d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM and ERMD that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.
- (e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

Malfunction Condition

7. That pursuant to IAPCB Regulation 1-6-2 (Malfunctions and scheduled maintenance) and 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Environmental Resources Management Division (ERMD), upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to ERMD, using the Malfunction Report Forms(2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of IAPCB Regulation 1-6 and 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in IAPCB Regulation 1-6-2(a)(1) through (6) and 326 IAC 1-6-2(a)(1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [IAPCB Regulation 1-2-39 and 326 IAC 1-2-39]

40 CFR 60, Subpart GG (Stationary Gas Turbines):

8. The gas turbines (EU GT1, GT2 and GT 3)are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.330, (Subpart GG)), since the heat input capacity is greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

- (a) Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

- (1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$\text{STD} = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

- (2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;
- (3) Pursuant to 40 CFR Part 60 Subpart GG and pursuant to the custom schedule for natural gas firing allowed by 40 CFR 60.334(b) and approved by IDEM on December 28, 1998 for the Gas Turbines at IPL's E. W. Stout Generating Station, the Permittee shall monitor the sulfur content and nitrogen content of the fuel being fired in Emission Units IDs GT1, GT2 and GT3, according to 40 CFR 60.335. The frequency of determination of these values shall be as follows:

For natural gas:

- (i) The sulfur and nitrogen content of natural gas shall be obtained and analyzed within thirty (30) days of each one (1) billion standard cubic feet landmark consumption period. Reporting of the results shall be done quarterly for the quarter in which the analysis was performed. Sampling and analysis of the natural gas shall be performed according to 40 CFR 60.335 (d).

- (4) report periods of excess emissions, as required by 40 CFR 60.334(c).

#### Emergency Reduction Plans

9. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:

**Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015**

and

**Environmental Resources Management Division  
Air Quality Management Section, Compliance Data Group  
2700 South Belmont Avenue  
Indianapolis, Indiana 46221-2097**

within ninety (90) calendar days from the date on which this source commences operation.

- (c) If the ERP is disapproved by IDEM, OAM and ERMD, the Permittee shall have an additional

thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM ERMD shall supply such a plan.

- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.
- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by IDEM, OAM and ERMD, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

PSD Minor Source Limit

10. The following limitations will ensure this source stays below 250 tons per year of all criteria pollutants, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

- (a) Gas Turbines GT1, GT2 and GT3 combined natural gas consumption will be limited to 5,570 million standard cubic feet per 12 consecutive months rolled on a monthly basis, which is equivalent to NO<sub>x</sub> emission below 250 tons per year.

This limit is based on the manufacturer's maximum NO<sub>x</sub> emission rate of 79 pounds per hour for each Gas Turbine GT1, GT2 and GT2, which is to be verified during the initial stack test in accordance with condition 6.

These limitations will ensure this source stays below 250 tons per year of NO<sub>x</sub> such that the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

NO<sub>x</sub> is the constraining pollutant. Therefore, restrictions on the fuel (natural gas) throughput to restrict NO<sub>x</sub> emissions to below 250 tons per year would, effectively, limit all other pollutants, or

- (b) As an alternative to (a), after the initial stack test, during which the manufacturer's hourly emission rates are to be verified, the permittee can report the NO<sub>x</sub> mass emissions in accordance with the procedures regulated by 40 CFR Part 75. These recordkeeping and reporting procedures require an emissions reporting system fully certified by ERMD, IDEM and EPA under 40 CFR Part 75.
- (c) Carbon Monoxide (CO)  
Turbines GT1, GT2 and GT3 shall be limited to less than 250 tons per year via the emission limitation and reporting system developed for NO<sub>x</sub> emissions, the constraining pollutant for this project. This limitation will ensure this source stays below 250 tons per year of CO, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

Annual Emission Reporting

11. That pursuant to IAPCB Regulation 2-6 (Annual emission statement rule) and 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the facility. This statement must be received by April 15 of each year and must comply with the minimum requirements specified in IAPCB Regulation 2-6-4 (Annual emission statement rule) and 326 IAC 2-6-4. The annual emission statement must be submitted to:

<b>Indiana Department of Environmental Management</b>	<b>Environmental Resources Management Division</b>
<b>Compliance Data Section, Office of Air Management</b>	<b>Air Quality Management Section, Compliance Data Group</b>
<b>100 North Senate Avenue, P.O. Box 6015</b>	<b>2700 South Belmont Avenue</b>
<b>Indianapolis, Indiana 46206-6015</b>	<b>Indianapolis, Indiana 46221-2097</b>

The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30.

- Open Burning
12. That the Permittee shall not burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6 and City of Indianapolis Ordinance, Chapter 511, Sections 511-703 through 511-706.
- Opacity Limitations
13. That pursuant to IAPCB Regulation 5-1-2 (Smoke and other visible emissions) and 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in IAPCB Regulation 5-1-3 (Exception) and 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:
- a) Visible emissions shall not exceed an average of 30% opacity in 24 consecutive readings.
  - b) Visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.
- Particulate Matter Limitation
14. That pursuant to IAPCB Regulation II-2(A)(1)(a) and 326 IAC 6-1-2(a), particulate matter (PM) emissions from the turbines shall be limited to 0.03 grain/dry standard cubic foot.
- Fugitive Dust Emissions
15. That pursuant to IAPCB Regulation II-4 (Air Borne Particulate) and 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall be in violation of IAPCB Regulation II-4 (Air Borne Particulate) and 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of ERMD or IDEM [IAPCB Regulation II-4(E)(1) and 326 IAC 6-4-5(c)].
- Reporting Requirements
16. That a log of information necessary to document compliance with operation permit condition no/s.8, 9, and 10 shall be maintained. These records shall be kept for at least the past 36 month period and made available upon request to the Office of Air Management (OAM) and ERMD.

- (a) A quarterly summary shall be submitted to:

<b>Indiana Department of Environmental Management</b>	<b>Environmental Resources Management Division</b>
<b>Compliance Data Section, Office of Air Management</b>	<b>Air Quality Management Section, Compliance Data Group</b>
<b>100 North Senate Avenue, P.O. Box 6015</b>	<b>2700 South Belmont Avenue</b>



**Indianapolis, Indiana 46206-6015**                      **and**                      **Indianapolis, Indiana 46221-2097**

within 30 days after the end of the quarter being reported in the format attached. These reports shall include the fuel usage on a monthly basis and on a twelve month rolling basis, or the tons of NOx emitted for each month during the reporting period and on a twelve month rolling basis; and the sulfur and nitrogen content in the fuel combusted from the most recent analysis.

- (b) Unless otherwise specified in this permit, any notice, report, or other submissions required by this permit shall be timely if:
  - (i) Delivered by U.S. mail and postmarked on or before the date it is due; or
  - (ii) Delivered by any other method if it is received and stamped by IDEM, OAM and ERMD on or before the date it is due.
- (c) All instances of deviations from any requirements of this permit must be clearly identified in such reports.
- (d) Any corrective actions taken as a result of an exceedance of a limit, an excursion from the parametric values, or a malfunction that may have caused excess emissions must be clearly identified in such reports.
- (e) The first report shall cover the period commencing with the postmarked submission date of the Affidavit of Construction.

## Affidavit of Construction

I, \_\_\_\_\_, being duly sworn upon my oath, depose and say:  
(Name of the Authorized Representative)

1. I live in \_\_\_\_\_ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of \_\_\_\_\_ for \_\_\_\_\_.  
(Title) (Company Name)
3. By virtue of my position with \_\_\_\_\_, I have personal  
(Company Name)  
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of \_\_\_\_\_.  
(Company Name)
4. I hereby certify that **the Indianapolis Power and Light Company , DTE Georgetown, LLC (Georgetown Substation Generating Plant)** has constructed the **Gas Turbines GT1, GT2 and GT3** in conformity with the requirements and intent of the construction permit application received by the Environmental Resources Management Division on December 3, 1998 and as permitted pursuant to the **Construction Permit 099-0352-01**, issued on \_\_\_\_\_
5. Additional operations/facilities were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit. (Delete this statement if it does not apply).

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

STATE OF INDIANA)  
)SS

COUNTY OF \_\_\_\_\_ )

Subscribed and sworn to me, a notary public in and for \_\_\_\_\_ County and State of  
Indiana on this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_\_.

My Commission expires: \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name (typed or printed)

**City of Indianapolis  
Environmental Resources Management Division  
Compliance Data Group  
2700 S. Belmont Ave.  
Indianapolis, Indiana 46221-2097  
Phone 317 / 327-2234, Fax: 317 / 327- 2274**

**Malfunction / Excess Emissions Report**

Company Name: **Indianapolis Power and Light Company, DTE Georgetown, LLC**

Location: **8198 Georgetown Road, Indianapolis, IN 46268**

Construction Permit No.: 0990352-01

Source/Facility: **Three (3) General Electric simple  
cycle, natural gas-fired combustion  
turbines (GT1, GT 2 and GT 3)**

Control/Device Which Malfunctioned:
Affected Facility:
Date of Malfunction:
Start Time of Malfunction:
Duration Time of Out of Service:
Pollutant/s Emitted During Malfunction: PM, PM10, SO <sub>2</sub> , VOC, Other:
Estimate of Amount of Pollutant Emitted During the Malfunction (include how estimate was determined):
Measures Taken to Minimize Shutdown Time:
Reasons Why Facility Cannot be Shutdown During Repairs:
Interim Control Measures:
Measures Taken to Correct Malfunction:
Malfunction Reported By:
Title:
Signature:
Date:
Time:

The filing of such information is mandated by Federal, State, and Local Air Pollution Legislation. Violation of this mandate through omission or false information may be subject to penalty.

I hereby certify that the information contained in this notification is complete and accurate to the best of my knowledge.

Submitted by: \_\_\_\_\_ Title/Position: \_\_\_\_\_  
(Print)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Indianapolis Environmental Resources Management Division (ERMD) Air Quality Management Section

## Addendum to the Technical Support Document for Construction Permit

### Source Background and Description

**Source Name:** Indianapolis Power and Light Company  
Georgetown Substation Generating Plant  
DTE Georgetown, LLC  
**Source Location:** 8198 Georgetown Road Indianapolis, IN 46268  
**County:** Marion  
**SIC Code:** 4911  
**Permit:** CP 099-0352-01  
**Permit Reviewer:** B. Gorlin

On August 6, 1999, the Environmental Resources Management Division (ERMD) had a notice published in the Indianapolis Star, Indianapolis, Indiana, stating that Indianapolis Power and Light Company had applied for a Construction Permit for IPL Georgetown Substation Generating Plant, DTE Georgetown, LLC. This notice indicated that the source will construct and operate three (3) General Electric simple cycle combustion powered electric generators (EU GT1, GT2 and GT3) rated at 88.4 MW each at peak load (59 degrees Fahrenheit at 860 feet). Nitrogen Oxide (NOx) emissions are controlled by dry low NOx combustors.

During the 30 public notice period ERMD received comments from the Indianapolis Power and Light Company and IDEM (OAM). ERMD response to these comments are stated below (changes are bolded, removed language is struck out):

### IPL Comments

1. Comment: Operation Condition 5 should be revised to show that records will be kept on the premises of the IPL Morris Street Building rather than at the E. W. Stout Generating Station.

Response: Condition 5 was revised:

That pursuant to 326 IAC 2-1-3(I), the Permittee shall maintain the applicable permit and all applicable records on the premises of the ~~E. W. Stout Generating Station~~ **IPL Morris Street Building (the facility will be controlled remotely)** and shall make this permit available for inspection by the ERMD, IDEM, or other public official having jurisdiction.

That pursuant to 326 IAC 2-1-3(I), the Permittee shall maintain the applicable permit and all applicable records on the premises of the IPL Morris Street Building (the facility will be controlled remotely) and shall make this permit available for inspection by the ERMD, IDEM, or other public official having jurisdiction.

2. Comment: In Operation Condition 6 please note that the rule citation for Source Sampling Procedures changed from 326 IAC 3-2.1 to 326 IAC 3-6.

Response: Condition 6 was revised:

... These tests shall be performed according to 326 IAC ~~3-2.1~~ **3-6** (Source Sampling

Procedures) using the methods specified in the rule or as approved by the Administrator.

3. Comment: In lieu of a lb/MMBtu "limit" in Operation Condition 10 (a) IPL would prefer to have the worst case lb/hr emission rate (79 lb/hr) for each gas turbine included in the permit, as submitted in our permit application. Condition 10 (a) should list the averaging time of a calendar month as listed on the Quarterly Report Form.

Response: Condition 10 (a) was revised:

- (a) ~~Gas Turbines GT1, GT2 and GT3 NOx emissions shall be limited to below 0.086 pounds per million BTU when combusting natural gas.~~

Gas Turbines GT1, GT2 and GT3 combined natural gas consumption will be limited to 5,570 million standard cubic feet per 12 consecutive months rolled on a monthly basis, which is equivalent to NO<sub>x</sub> emission below 250 tons per year.

**This limit is based on the manufacturer's maximum NOx emission rate of 79 pounds per hour for each Gas Turbine GT1, GT2 and GT2, which is to be verified during the initial stack test in accordance with condition 6.**

These limitations will ensure this source stays below 250 tons per year of NO<sub>x</sub> such that the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

4. Comment: Condition 10 (b) needs modification. For future flexibility IPL is requesting that the reference to Appendix E be removed. New wording referencing the monitoring, QA requirements, and and missing data replacement routines under 40 CFR Part 75 are sufficient to demonstrate compliance with the <250 tons NOx limit. For the Agency's information, Appendix E applies to peaking units only. If these proposed units operate beyond that definition, they will then be required to install CEMS and will be regulated under a different section of Part 75. This was not an issue at E.W. Stout due to the low NOx limit, but is a possibility at this site.

Response: Condition 10 (b) was revised:

- (b) As an alternative to (a), after the initial stack test, during which the manufacturer's hourly emission rates are to be verified, the permittee can report the NOx mass emissions in accordance with the procedures regulated by 40 CFR Part 75, ~~Appendix E. This~~ **These** recordkeeping and reporting procedures require an emissions reporting system fully certified by ERMD, IDEM and EPA under 40 CFR Part 75.

4. Comment: Operation Condition 12 does not include the local open burning rule citation.

Response: Condition 12 language was revised:

That the Permittee shall not burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6 **and City of Indianapolis Ordinance, Chapter 511, Sections 511-703 through 511-706.**

6. Comment: Condition 16 (a) does not include the option of reporting fuel usage. This is a stated option in Condition 10. For clarification purposes, IPL is suggesting that wording be added to indicate that all records will be kept at IPL's Morris Street

Building.

Response: Record keeping at IPL's Morris Street Building was added to Operation Condition 5. Otherwise, Condition 16 (a) was revised:

(a) A quarterly summary shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

and

Environmental Resources Management Division  
Air Quality Management Section, Compliance Data Group  
2700 South Belmont Avenue  
Indianapolis, Indiana 46221-2097

within 30 days after the end of the quarter being reported in the format attached. These reports shall include **the fuel usage on a monthly basis and on a twelve month rolling basis, or the tons of NOx emitted for each month during the reporting period and on a twelve month rolling basis; and the sulfur and nitrogen content in the fuel combusted from the most recent analysis.** ~~the tons of NOx emitted for each month during the reporting period and on a twelve month rolling basis and the sulfur and nitrogen content of the fuel combusted from the most recent analysis.~~

7. Comment: Quarterly Report Form:

%Sulfur, %Nitrogen and fuel consumption should also be included as "parameters". Revise the wording used to describe the "Limits".

In all terms the units "MMdscf" should be replaced with "MMscf". IPL does not measure gas on a wet or dry basis.

The parameter "Monthly weighted natural gas average percentage sulfur" should be replaced with the parameter "Most recent natural gas percent sulfur", since IPL conducts a grab sample analysis, not a weighted average analysis.

A parameter should be added described as "Most recent natural gas percent Nitrogen".

The word "average" should be dropped from the parameter "Monthly average NOx Emission, ton".

The agency may want to consider adding another line including the "monthly average NOx, lb/hr".

For clarity and to assist with future interpretations of requirements, please delineate or mark one set of NOx reporting requirements vs. The other in the chart.

Response: Quarterly Report Form was revised (see the Form attached).

**IDEM (OAM) Comments**

1. Comment: In the TSD Addendum, it is recommended that you indicate that if the PSD limits are to be relaxed, the PSD limits will have to comply with the PSD BACT at this time of review.

Response: The source may not relax the PSD limits without a prior approval. If the source applies for relaxation of the PSD limits (fuel consumption, 250 tons of NOx emissions per year), this application will be reviewed to impose limits (and/or requirement to install additional control equipment) satisfying requirements of the PSD BACT at the time of this review.

**ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR MANAGEMENT  
COMPLIANCE DATA SECTION  
and  
INDIANAPOLIS ENVIRONMENTAL RESOURCES MANAGEMENT DIVISION  
AIR QUALITY MANAGEMENT SECTION  
DATA COMPLIANCE**

**Quarterly Report**

**NOx EMISSIONS**

Source Name: Indianapolis Power and Light Company, DTE Georgetown, LLC  
(Georgetown Substation Generating Plant)  
Source Address: 8198 Georgetown Road, Indianapolis, IN 46268  
Mailing Address: 1230 West Morris Street, Indianapolis, Indiana 46221  
Construction Permit: CP0990352-01  
Facility: Emission Units ID GT1, GT2 and GT2.  
Parameters: NOx Emission, % Sulfur, % Nitrogen and Fuel Consumption  
Limits: **NOx: 5,570 million standard cubic feet of natural gas per rolling 12 month period; less than 250 tons of NOx emissions per year based on twelve month rolling emission, and maximum NOx emission rate of 79 hour per hour. ; NOx calendar month average emission rate in lbs/MMBtu of less than 0.086 lbs/MMBtu;**  
**SO<sub>2</sub>: Weight %S less than 0.8%.**

Quarter: \_\_\_\_\_ Year: \_\_\_\_\_

Parameter	Month1	Month2	Month 3
Total quantity natural gas burned this month, MMscf			
Rolling twelve month natural gas consumption, MMscf			
Most recent natural gas average weight percent sulfur			
Most recent natural gas weight percent Nitrogen			
Monthly NOx emission, ton			
Rolling twelve month NOx emission, ton			

Submitted by: \_\_\_\_\_  
Title/Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Indianapolis Environmental Resources Management Division  
Air Quality Management Section**

and

**Indiana Department of Environmental Management  
Office of Air Management**

Technical Support Document (TSD) for New Construction and Operation

**Source Background and Description**

Source Names: Indianapolis Power and Light Company  
DTE Georgetown, LLC  
Source Location: Georgetown Substation Generating Plant  
8198 Georgetown Road, Indianapolis, IN 46268  
County: Marion  
Construction Permit No.: 099-0352-01  
SIC Code: 4911  
Permit Reviewer: Boris Gorlin

The Environmental Resources Management Division (ERMD) has reviewed an application from Indianapolis Power and Light Company relating to the construction and operation of three new gas fired gas turbines consisting of the following equipment:

- a) three (3) General Electric simple cycle combustion powered electric generators (EU GT1, GT2 and GT3) rated at 88.4 MW at peak load @ 59 degrees Fahrenheit and 860 feet). Nitrogen Oxide (NO<sub>x</sub>) emissions are controlled by dry low NO<sub>x</sub> combustors.

**Stack Summary**

Stack ID	Operation	Height (feet)	Dimensions (feet)	Flow Rate (scfm)	Temperature (°F)
GT1	CT1	56	9' x 19'	523,615	1063
GT2	CT2	56	9' x 19'	523,615	1063
GT3	CT 3	56	9' x 19'	523,615	1063

**Recommendation**

The staff recommends to the Administrator that the construction and operation be approved. This recommendation is based on the following facts and conditions:

A complete application for the purposes of this review was received on December 3, 1998. The revised application was received on July 30, 1999.



## Emissions Calculations

Emissions calculations contained in the application were examined for accuracy, and used throughout this document. See appendix A for sample equivalency calculations.

## Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM <sub>10</sub> )	<250	65.7
Sulfur Dioxide (SO <sub>2</sub> )	<250	8.15
Volatile Organic Compounds (VOC)	<250	23.7
Carbon Monoxide (CO)	<250	684
Nitrogen Oxides (NO <sub>x</sub> )	<250	1038
Single Hazardous Air Pollutant (HAP)	<10	7.1
Combination of HAPs	<25	7.1

- (a) Allowable emissions of NO<sub>x</sub> and CO are limited such that the requirements of rule 326 IAC 2-2, Prevention of Significant Deterioration will not apply.
- (b) The allowable emissions based on the rules cited are less than the potential emissions, therefore, the potential emissions are used for the permitting determination.
- (c) Allowable emissions (as defined in the Indiana Rule) of NO<sub>x</sub>, CO, and PM-10, are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-5.1, a construction permit is required.

## County Attainment Status

- (a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the ozone standards. Marion County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

## Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	<250
PM <sub>10</sub>	<250

SO <sub>2</sub>	<250
VOC	<250
CO	<250
NO <sub>x</sub>	<250
Single HAP	<10
Combination HAPs	<25

- (a) The NO<sub>x</sub> emission is limited to less than 250 tons/yr, therefore, 326 IAC 2-2 and 40 CFR 52.21 requirements do not apply.
- (b) The CO is limited to less than 250 tons/yr, therefore, 326 IAC 2-2 and 40 CFR 52.21 requirements do not apply.
- (d) This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

## Part 70 Permit Determination

### 326 IAC 2-7 (Part 70 Permit Program)

This new source is subject to the Part 70 Permit requirements because the potential to emit (PTE) of one or more criteria pollutants is greater than or equal to 100 tons per year

This new source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

## Federal Rule Applicability

### 40 CFR 60, Subpart GG (Stationary Gas Turbines):

The gas turbines (EU GT1, GT2 & GT3) are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.330, (Subpart GG)), since the heat input capacity is greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

- (1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$\text{STD} = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

- (2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;
- (3) monitor the sulfur content and nitrogen content of the fuel being fired in the turbine, as required by 40 CFR 60.334(b); and
- (5) report periods of excess emissions, as required by 40 CFR 60.334(c).

#### 40 CFR Part 72-80 (Acid Rain Program)

This source is subject to the requirements of 40 CFR Part 72-80 (Acid Rain Program). The requirements of this program shall be detailed in a Acid Rain Permit.

There are no other New Source Performance Standards (326 IAC 12) and 40 CFR Part 60 applicable to this facility.

There are no NESHAP 40 CFR Part 63 applicable to this facility.

#### State Rule Applicability

326 IAC 1-5-2 and 326 IAC 1-5-3 (Emergency Reduction Plans):

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:  
  
Environmental Resources Management Division  
Compliance Manager  
2700 S. Belmont Avenue  
Indianapolis, Indiana 46221, and  
  
Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
within 180 days from the date on which this source commences operation.
- (c) If the ERP is disapproved by ERMD, or IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, then IDEM, OAM, shall supply such a plan.
- (d) These ERPs shall state those actions that will be taken, when each episode level is

declared, to reduce or eliminate emissions of the appropriate air pollutants.

- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by ERMD or IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

The source is subject to 326 IAC 1-5-2 and 1-5-3 because the source's CO and NO<sub>x</sub> PTE are greater than 100 tons per year.

#### 326 IAC 2-1-3.4 (New Source Toxics Rule)

- (a) Pursuant to EPA VOC Specification Manual (EPA 450/2-88-003a, April 1988) formaldehyde emissions from combustion turbines are conservatively estimated at thirty (30) percent of the VOC emissions.
- (b) This Gas Turbine GT6 will not emit levels of air toxics greater than those that constitute a major HAP source applicability according to Section 112 of the 1990 Clean Air Act Amendments.

#### 326 IAC 2-2 (Prevention of Significant Deterioration):

- (a) Gas Turbines GT1, GT2 and GT3 NO<sub>x</sub> emissions shall be limited to below 0.085 pounds per million BTU when combusting natural gas.

Gas Turbines GT1, GT2 and GT3 combined natural gas consumption will be limited to 5,570 million standard cubic feet per 12 consecutive months rolled on a monthly basis, which is equivalent to NO<sub>x</sub> emission below 250 tons per year.

These limitations will ensure this source stays below 250 tons per year of NO<sub>x</sub> such that the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

NO<sub>x</sub> is the constraining pollutant. Therefore, restrictions on the fuel (natural gas) throughput to restrict NO<sub>x</sub> emissions to below 250 tons per year would, effectively, limit all other pollutants,

or

- (b) As an alternative to (a), after the initial stack test, during which the manufacturer's hourly emission rates are to be verified, the permittee can report the NO<sub>x</sub> mass emissions in accordance with the procedures regulated by 40 CFR Part 75, Appendix E. This recordkeeping and reporting procedures require an emissions reporting system fully certified by ERMD, IDEM and EPA under 40 CFR Part 75.
- (c) Carbon Monoxide (CO)  
Turbines GT1, GT2 and GT3 shall be limited to less than 250 tons per year via the emission limitation and reporting system developed for NO<sub>x</sub> emissions, the constraining pollutant for this project. This limitation will ensure this source stays below 250 tons per year of CO, therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR

52.21, will not apply.

**326 IAC 2-6 (Emission Reporting):**

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 100 tons/yr of NO<sub>x</sub> and CO. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by April 15 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

**326 IAC 5-1-2 (Opacity Limitations):**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the opacity shall meet the following:

- (a) Opacity shall not exceed an average of 30% any one (1) six (6) minute averaging period.
- (b) Opacity shall not exceed 60% for more than a cumulative total of 15 minutes (60 readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute non-overlapping integrated averages for a continuous opacity monitor) in a 6-hour period.

**326 IAC 6-1-2 (Particulate Emissions Limitations, Section 2(a), General Sources)**

Since the source is located in Marion County, emissions from each turbine shall be limited to 0.03 grain/dry standard cubic foot.

Potential PM (PM<sub>10</sub>) emission is 0.001 grain/dry standard cubic foot, therefore, the source will be in compliance with with rule.

No other 326 IAC 6 rules apply.

326 IAC 8-1-6 does not apply to the combustion turbines because the potential VOC emissions are less than 25 tons per year per unit.

No other 326 IAC 8 rules apply.

**Conclusion**

The construction of these three (3) gas turbines will be subject to the conditions of the attached proposed **Construction Permit No. CP-099-0352-01**.

# Appendix A: Emission Calculations

Page 1 of 1 (TSD App. A)

Emission Unit IDs GT1, GT2 and GT3  
General Electric  
Natural /Gas simple cycle combustion  
powered electric generators

Company Name: Indianapolis Power & Light Company, DTE Georgetown, LLC (Georgetown Substation Gerenerating Plant)  
Address City IN Zip: 8138 Georgetown Road, Indianapolis, Indiana 46268  
CP 099-0352-01  
Plt ID: 097-00352  
Reviewer: Boris Gorlin

Natural Gas  
Heat Input Capacity  
MMBtu/hr

924.0

One Turbine:  
Three Turbines:

Potential Throughput  
7,709 MMscf/yr  
23,126 MMscf/yr

S = Weight % Sulfur  
8.10E-04

	Pollutant					
	PM10	SO2	NOx	VOC	CO	Formaldehyde
Manufact. Emission Rate in lb/hr (3 turbines combined)	15.000	1.860	237.000	5.400	156.000	30% of VOC*
Manufact. Emission Rate in lb/MMBtu	0.00541126	0.000671	0.08549784	0.00194805	0.05627706	0.00058442
Potential Emission in tons/yr (3 turbines)	65.7	8.1468	1038.1	23.7	683.3	7.1
<b>Limited Emissions, ton/yr:</b>	<b>250.00</b>	<b>250.00</b>	<b>250.00</b>	<b>250.00</b>	<b>250.00</b>	<b>10.00</b>
<b>Total (3 turbines) Limited Fuel (Natural Gas) Throughput, MMscf/yr:</b>	<b>29,333</b>	<b>709,677</b>	<b>5,570</b>	<b>244,444</b>	<b>8,462</b>	
<b>Emissions at NOx constrained fuel limite:</b>	<b>15.82</b>	<b>1.96</b>	<b>250.00</b>	<b>5.70</b>	<b>164.56</b>	<b>1.71</b>

## Methodology

Potential Throughput (MMscf/yr) = Heat Input Capacity (MMBtu/hr) x 8,760 hr/yr x 1MMscf / 1050 MMscf

Emission Rates at peak conditions, lb/hr, are supplied by the source (manufacturer data).

Emission (tons/yr) = Emission Rate (lb/hr) x 8760 hr/yr x 1 ton/2,000 lb

\* Formaldehyde Emission is 30% of VOC (the EPA "Speciate" program).

Potential PM10 Emissions, ton/yr (3 turbines), ton/yr 65.7  
or: grain/dscf (at 523,615x3=1,570,845 dscfm) = 0.001

**ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR MANAGEMENT  
COMPLIANCE DATA SECTION  
and  
INDIANAPOLIS ENVIRONMENTAL RESOURCES MANAGEMENT DIVISION  
AIR QUALITY MANAGEMENT SECTION  
DATA COMPLIANCE**

**Quarterly Report**

**NOx EMISSIONS**

Source Name: Indianapolis Power and Light Company, DTE Georgetown, LLC  
(Georgetown Substation Generating Plant)  
Source Address: 8198 Georgetown Road, Indianapolis, IN 46268  
Mailing Address: 1230 West Morris Street, Indianapolis, Indiana 46221  
Construction Permit: CP0990352-01  
Facility: Emission Units ID GT1, GT2 and GT2.  
Parameters: NOx Emission, % Sulfur, % Nitrogen and Fuel Consumption  
Limits: NOx: 5,570 million standard cubic feet of natural gas per rolling 12  
month period; less than 250 tons of NOx emissions per year based  
on rolling twelve month average and maximum NOx emission rate  
of 79 hour per hour.  
SO<sub>2</sub>: Weight %S less than 0.8%.

Quarter: \_\_\_\_\_ Year: \_\_\_\_\_

Parameter	Month1	Month2	Month 3
Total quantity natural gas burned this month, MMscf			
Rolling twelve month natural gas consumption, MMscf			
Most recent natural gas average weight percent sulfur			
Most recent natural gas weight percent Nitrogen			
Monthly NOx emission, ton			
Rolling twelve month NOx emission, ton			

Submitted by: \_\_\_\_\_  
Title/Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_